No. 7900034

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Agronomy & Soils Dept., Auburn University, Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT TY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COMMON VETCH

'Vanguard'

PLANT VARIETY PROTECTION OFFICE · U.S. DEPARTMENT OF AGRICULTURE

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 24th *day of* September *in the year of our Lord one thousand nine hundred and* eighty-one.

Attest:

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

Secretary of Agriculture

FORM GR-470
(1-76)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
PLANT VARIETY PROTECTION OFFICE
NATIONAL AGRICULTURAL LIBRARY
BELTSVILLE, MARYLAND 20705

FORM APPROVED
OMB NO. 40-R3712

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1a. TEMPORARY DESIGNATION OF VARIETY: Vicia sativa x V. serratifolia	1b. VARIETY NAME: Vanguard	FOR OFFICIAL USE ONLY PV NUMBER: 7900034	
2. KIND NAME: Common Vetch (B 1/30/81)	3. GENUS AND SPECIES NAME: Vicia sativa	FILING DATE: 12-27-78	TIME: 2:30 A.M. (P.M.)
4. FAMILY NAME (BOTANICAL): Leguminosae	5. DATE OF DETERMINATION: 1971	FEE RECEIVED: $ 250.00 / $ 250.00 / $ 250.00	DATE: 12-27-78 / 12-27-78 / 9/1/81
6. NAME OF APPLICANT(S): Agronomy & Soils Dept. Auburn University Agri. Expt. Sta.	7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code): Auburn University Auburn, AL 36830		8. TELEPHONE AREA CODE AND NUMBER: (205) 826-4100
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) State University	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION: Alabama		11. DATE OF INCORPORATION: 1872

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:
E. D. Donnelly, Agronomy & Soils Dept., Auburn University, Auburn, AL 36830

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [XX] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [X] 13B. Exhibit B, Novelty Statement. (B 1/27/81)
- [X] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- [X] 13D. Exhibit D, Additional Description of the Variety.

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? *(See Section 83(a). If "Yes," answer 14B and 14C below.)* [ ] YES [X] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [ ] YES [ ] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [ ] FOUNDATION [ ] REGISTERED [ ] CERTIFIED

15. Does the applicant(s) agree to the publication of his/her (their) name(s) and address in the Official Journal? [X] YES [ ] NO

16. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

12/13/78
(DATE)

L. E. [illegible]
(SIGNATURE OF APPLICANT)

12/13/78
(DATE)

E. D. Donnelly
(SIGNATURE OF APPLICANT)

FORM GR-470 (Reverse)

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, National Agricultural Library, Beltsville, Maryland 20705. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM	
5	Give the date the applicant determined that he had a new variety based on (1) the definition in Section 41(a) of the Act and (2) the date a decision was made to increase the seed.
13a	Give (1), the genealogy, including public and commerical varieties, lines, or clones used, and the breeding method. (2), the details of subsequent stages of selection and multiplication. (3), the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4), evidence of stability.
13b	Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties; (1) identify these varieties and state all differences objectively; (2) Attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
13c	Fill in the Exhibit C, Objective Description form for all characteristics, for which you have adequate data.
13d	Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe; such as; plant habit, plant color, disease resistance, etc.

14A If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled or published or the certificate has been issued. However, if the applicant specifies "NO", he may change his choice. (See Section 180.15 of the Regulations and Rules of Practice.)

Exhibit A

Origin and History of the Variety

1. Name: Vicia sativa L. cv. 'Vanguard'

2. Description, Genealogy, and Breeding Procedure:

Vanguard (tested as Vicia sativa x V. serratifolia) is a F_7 line from the interspecific cross Vicia sativa (A1, 1894) x V. serratifolia) P. I. 170017). The F_1 hybrid was fertile. The pure line method of breeding was followed. In F_2 and subsequent generations basically only the two parental plant types were observed. However, there was a wide range in vigor and seed production within a type. Individual selected plants in each genereation through F_6 were selected for vigor, cold hardiness, seed production (seed of each selected plant were harvested, threshed, and weighed), and a high percentage hard seed (4). Vanguard breeds true for a high percentage hard seed, as determined by the procedure of Donnelly (3).

Characteristics of Vanguard are essentially those of V. sativa (1). Flowers are purple, and stems and leaves have anthocyanin pigmentation. Nectaries of stipules also have purple pigments. Growth habit is erect. Plants produce many seed. (ca. 6-8 per pod)and reseed. Seeds have hard seedcoats and are large, weighing ca. 21.2 gm/500.

1/ Personal communication, James M. Epps, Research Nematologist, Nematology Investigations, U.S.D.A. , Jackson, TN 38301.

2/ Donnelly, E.D. Unpublished data. Dept. of Agronomy and Soils Annual Report, 1965.

3/ Donnelly, E. D. Unpublished data. Dept. of Agronomy & Soils Annual Report, 1976.

Warrior, Nova II, Cahaba White, or Vantage, anthocyanin pigmentation on all seedlings like Warrior in intensity and height. Leaflets all pointed, 2 in. (4 cm) long and 1/8 in. (3 mm) wide, all with four bifoliate leaves before has multifoliate leaf.

Documentary specimens of this cultivar are deposited in the Auburn University Herbarium (AUA).

Addendum to Exhibit A - Vanguard (Application No. 7900034)

Origin and History of the Variety

2. Description, Geneology, and Breeding Procedure:

Vanguard (tested as Vicia sativa x V. serratifolia, R34P4) is an advances generation line (Line 1 in reference 6) from the interspecific cross Vicia sativa (Al. 1894) x V. narbonensis f. serratifolia (Jacq.) Hermann (P. I. 170017 (reference 5).

Vanguard if genetically stable and uniform for purple flower color. If plants with flowers of a color different than purple are found, these are the result of mechanical mixing (discounting mutation and a rare chance cross). This variety also is stable and uniform for reddish stem coloration and red stipular nectaries.

Seeds of Vanguard are genetically stable and uniform for color and size. However, seed color and size are affected by environment. One can open a single pod from a plant and find color variation within the pod. One side of a seed frequently is lighter in color than the other side in spite of the fact that seedcoat is maternal tissue and is genetically alike among seed from a single plant. Vetch is indeterminate, and seeds produced on different parts of the same plant will vary in size due to moisture availablity and nutrient uptake at the time seeds are developing. Seeds distinctly different in size and color are the result of mechanical mixing (discounting mutation and a rare chance cross).

Vanguard if genetically stable and uniform for erect adult plant habit.

Vanguard is genetically stable and uniform for a high percentage hard seed. Hard seeds generally range from 60 to 88% (reference 6).

"Vanguard is uniform and stable" 7/10/81

References

5. Donnelly, E. D. 1979. Registration of Cahaba White, Vantage, Nova II, and Vanguard Vetch. Crop Sci. 19:414.

6. _____. 1980. Selecting Lines of Vetch that Breed True for Hard Seed. Crop Sci. 20: 259-260.

References

1. Hermann, F. J. 1960. Vetches in the United States - Native, Naturalized, and Cultivated. Agr. HB No. 168, U.S. Dept. of Agr.

2. Minton, Norman A., and E. D. Donnelly. 1967. Additional Vicia species resistant to root-knot nematodes. Plant Dis. Reptr. 51:614-616.

3. Donnelly, E. D. 1970. Persistence of hard seed in Vicia lines derived from interspecific hybridization. Crop Sci. 10:661-662.

4. _____. 1971. Breeding hard-seeded vetch using interspecific hybridization. Crop Sci. 11:721-724.

Exhibit B

1. Name: Vicia sativa L. cv. 'Vanguard'

2. Botanical Description of Cultivar

Characteristics essentially are those of V. sativa (1) with the exceptions noted below.

Plant: Erect. Stems and leaves have anthocyanin pigments, and leaves are very dark green. Nectaries of stipules are pigmented. Vanguard was cold hardy during the severe winter of 1976-77 at Tallassee, Ala.

Flowers: Purple

Fruit: Pods numerous (ca. 100/plant when space planted in nursery), usually black but straw colored in 1977 (a very dry spring), averaging 8 seed each, non-dehiscent and extremely non-shattering. Seed are compressed very close together in the pod, giving them a squarish shape. Pods are smaller than those of Warrior, Cahaba White, Vantage, or Nova II.

Seed: Large with hard seedcoats (50 to 90%)3/, ca. 21.2 gm./500. Yield per spaced plant 100 to 200 gm/plant2/. Seedcoat color is as follows: Strong yellow to brilliant yellow green background (5Y 7/10→2.5 GY 9/8) with grayish brown to grayish olive green splotches (7.5YR 3/2→ 7.5GY 3/2)according to Nickerson Color Fan. "Additionally there is a secondary pattern of black stippling and a sparser pattern of black marbling." 7/10/81

Seedlings: (2-3 weeks old, 4-6 inches tall, field grown): Tendrils less developed than Warrior, seedlings developed less rapidly (vigor) than Warrior, but more rapidly than Vantage or Cahaba White , stipules very small, smaller than

Vanguard is resistant to the vetch bruchid (Bruchus brachialis Fahr.)[2/] and to the root-knot nematodes Meloidogyne incognita, M. incognita acrita, and M. javanica (2). It is also resistant to races 3 and 4 of the soybean cyst nematode, Heterodera glycines Ichinohe[1/].

Vanguard produces herbage much earlier than Hairy vetch (V. villosa), produces much higher seed yields than Hairy or Willamette (V. sativa) in Alabama, and it reseeds following a seed crop when grown in a cropping system with summer crops such as corn, soybeans, or grain sorghum.

3. Declaration of Seed Availability:

A viable sample of basic seed necessary for propogation of the cultivar will be deposited and replenished periodically in a public repository in accordance with regulations of the Plant Variety Protection Office. A one-pound sample of seed of Vanguard has been deposited with the National Seed Storage Laboratory, Fort Collins, Colorado.

4. Statement of Ownership:

Vanguard, a new high yielding (forage and seed), reseeding vetch cultivar for green manure and grazing in the lower two-thirds of Alabama and other areas of the United States with similar climatic conditions, was developed by E. D. Donnelly in the Agronomy and Soils Department, Auburn University Agricultural Experiment Station.

An exclusive release, subject to terms of the agreement between the Auburn University Agricultural Experiment Station and Louisiana Seed Company, Inc., Alexandria, Louisiana, was made to the latter for propogation and dissemination of seed.

Addendum to Exhibit B - Vanguard (Vetch Application No. 7900034)

Vanguard is most similar to 'Warrior'; however, Vanguard breeds true for a high percentage hard seed, ranging from 60 to 88%, whereas Warrior most frequently has 0 to 3% hard seed. Vanguard has an erect adult plant habit, whereas Warrior has a climbing habit. Seed pods of Vanguard are extremely non-shattering and black in color at seed maturity, whereas seed pods of Warrior are only moderately non-shattering and olive tan in color. Seedlings of Vanguard (2-3 weeks old) in the field all have pointed leaflets, 2 inches (4 cm) long and 1/8 inch (3 mm) wide, all with four bifoliate leaves before they have a multifoliate leaf, whereas Warrior has 1 to 3 bifoliate leaves before they have a multifoliate leaf. Seedling leaflets of Warrior also are all pointed but much shorter and much wider than those of Vanguard (actual measurements of Warrior were not made and must await another planting). Seeds of Vanguard are much smaller than those of Warrior, 42 grams per 1,000 seeds for Vanguard compared to 52 grams per 1,000 seeds of Warrior.

FORM APPROVED: OMB NO. 40-R3822

EXHIBIT C
(Vetch)

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY

VETCH *(Vicia* spp.)

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
E. D. Donnelly	Vicia sativa x V. serraticolia	Vanguard

ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code)
Agronomy and Soils Department
Auburn University, Alabama 36849

FOR OFFICIAL USE ONLY

PVPO NUMBER
7900034

Place the appropriate number that describes the varietal character of this variety in the boxes below. Fill unused columns with zeros (e.g. [0][9][9] when number is 99). In comparisons to standard varieties, the value [0][0] should only be used to indicate that the varieties are equal. Characteristics described, including numerical measurements, should represent those which are TYPICAL for the variety. Measured data should be for SPACED PLANTS. Characters in item 3 are considered to reflect homogeneity; frequencies of nontypical plants should be taken into regard in Exhibit A. Any recognized color fan, e.g. National Bureau of Standards Circular 553 Supplement, may be used to determine plant colors; designate system used: Nickerson Color Fan Ranges of values may be included with additional description elsewhere in the application.

NOTE: *For single plant data a minimum of 100 plants is suggested.*

1. **KIND** *(in accordance with the Federal Seed Act):* Use the standard comparison varieties (in parentheses) in items below.

[8] 7/1/81

1 = common *(Willamette)* 2 = hairy *(Madison)* 3 = Hungarian ( ) 4 = monantha *(Lafayette)*
5 = narrowleaf ( ) 6 = purple ( ) 7 = woollypod *(Lana)*
8 = other *(specify)* Warrior

STANDARD COMPARISON VARIETIES *(Use the variety appropriate for the kind)*

1 = Willamette 2 = Madison 4 = Lafayette 7 = Lana 3,5,6,8 = specify Warrior

2. **SEED:**

[5] Shape: 1 = spherical 2 = subspherical *(Willamette)* 3 = sublenticular 4 = rectangular
5 = other *(specify)* subspherical with flattened end; subrhombic in x.s.

[0][5] mm maximum diameter [0][4][2] gms/1,000 seeds

[1][0] gms lighter than [8] standard variety
[ ][ ] gms heavier than [ ] standard variety

SEED COLOR: Colors should be determined on mature, freshly harvested seed.

[4] Ground color of testa: 1 = white 2 = pink 3 = brown 4 = light green 5 = grey-green 6 = grey *(Willamette)* 7 = blue-black

Seed coat pattern (ornaments):

[4] Type of main pattern
[2] Type of secondary pattern
1 = none 2 = stippling 3 = speckling *(Willamette)* 4 = marbling

[2] Color of main patterning: 1 = brown=red brown 2 = sepia=grey brown 3 = dark grey *(Willamette)* 4 = violet

HILUM:

[3] Color: 1 = white 2 = brown *(Willamette)* 3 = sepia=grey-brown 4 = black

[2] Size *(length--compared to seed circumference):* 1 = very small *(< 1/6)* 2 = small *(1/6 - 1/4)* 3 = large *(1/4 - 1/2)* 4 = very large *(> 1/2)*

9

[3] COTYLEDON COLOR: 1 = yellow 2 = buff 3 = orange 4 = pink-violet 5 = other *(specify)*

3. SEEDLING: Comparison varieties should be grown under identical conditions with the application variety in the field. Seedlings should be examined when all primary leaves are fully developed, but not senescent (3 - 4 weeks after germination). Greenhouse trials are not comparable; please indicate if these are used: _____

SEEDLING STEM *(Primary axis):*

max = 82.0

[5 2 . 4] mm height *(from soil to insertion of highest primary leaf)* ----------

# of p° leaves $\bar{X}$ = 3 (max 4)

[ ] [ ] . [ ] mm shorter than [ ] standard variety

[2 3 . 1] mm taller than [8] standard variety

[0 2 . 6] = $\bar{X}$ no. of secondary branches

[2] stem hairiness: 1 = glabrous 2 = pubescent 3 = hairy (very short appressed hirtellous)

[2] stem coloration *(especially in leaf axils):* 1 = green 2 = reddish

PRIMARY LEAF: *(1st primary leaf)*

[2] no. of leaflets/primary leaf *(not no. of pairs)*

[6] Shape *(see illustrations):* Compare dimensions of base and apex.

1 = subcordate 2 = ovate 3 = elliptic 4 = lanceolate 5 = sublinear 6 = linear

[0 1 . 95] mm maximum leaflet width.....

[1 . 08] mm narrower than [8] standard variety

[ ] . [ ] mm wider than [ ] standard variety

max - 49 mm

[3 6 . 4] mm leaflet length.....

[ ] [ ] . [ ] mm shorter than [ ] standard variety

[1 6 . 3] mm longer than [8] standard variety

Hairiness: *(consider density and length)*

[5] Upper surface.....

[5] Lower surface.....

1 = glabrous 2 = villous *(scarce, > 1 mm)* 3 = pubescent *(common, < 1/2 mm)*
4 = hairy *(common, > 1/2 mm)*

5= pubescent (v. sparse<½ mm)

4. MATURITY *(50% of plants in bloom):*

[0 8] days earlier than [8] standard variety

[ ] [ ] days later than [ ] standard variety

5. ADULT PLANT:

[3] Habit: 1 = decumbent 2 = climbing 3 = erect

[1 0 7] cm height *(canopy height if not erect)*.....

[ ] [ ] cm shorter than [ ] standard variety

[5 1] cm taller than [8] standard variety

10

6. ADULT LEAF *(At 2/3 height of plant on main stem at flowering):*

[0][6] no. pairs of leaflets

[3] Adult leaflet shape: 1 = elongate 2 = elliptical 3 = other *(specify)* Cuneiform

[4] Adult leaflet apex: 1 = truncate 2 = notched 3 = deeply notched 4 = truncate-apiculate

[2] Stipular nectaries: 1 = colorless 2 = red [2] Terminal tendrils: 1 = absent 2 = present

7. FLOWER:

$\bar{x}$ = 2.0, max. = 2, min = 2

[0][2] no. flowers/peduncle

PETAL *(Fully expanded standard of a freshly opened flower):*

[3] Color *(anterior face):* 1 = white 2 = pink 3 = light violet *(Willamette)* 4 = dark purple 5 = other *(specify)* _____

[0][1][8] mm width ..... [ ][ ] mm narrower than [ ] standard variety

[0][1] mm wider than [8] standard variety

8. POD *(At seed maturity):*

[4] Color: 1 = cream 2 = buff 3 = olive tan *(Willamette)* 4 = black (varies with environmental conditions) to light tan

[1] Hairiness: 1 = glabrous 2 = sparsely pubescent 3 = pubescent 4 = hairy

[4] Shape: 1 = straight linear 2 = curved linear 3 = rhomboid 4 = sigmoid

[0][5] mm width ..... [0][3] mm narrower than [8] standard variety

[ ][ ] mm wider than [ ] standard variety

[0][8] no. of seeds/pod [1] Constrictions between seeds: 1 = slight 2 = deep

[2] Shape of distal end of pod *(angle adjacent to beak):* 1 = obtuse 2 = acute

BEAK:

[2] length: 1 = short *(tuberculate)* 2 = long *(extended)*

[1] shape: 1 = straight 2 = recurved

11

9. DISEASES AND PESTS *(0 = not tested, 1 = susceptible, and 2 = resistant):*

[0]	Anthracnose *(Colletotrichum spp)*	[0]	Downy Mildew *(Peronospora spp)*
[0]	Rust *(Uromyces fabae)*	[0]	Leaf Spot *(specify)*
[0]	Stem Rot *(specify)*	[0]	Root Rot *(specify)*
[2]	Vetch Bruchid *(Bruchus brachialis)*	[0]	Potato Leafhopper *(Empoasca fabae)*
[0]	Lygus Bugs *(Lygus spp)*	[0]	Clover Leafhopper *(Aceratagallia sanguinoenta)*
[0]	Pea Aphid *(Acyrthosiphon pisum)*	[0]	Fall Armyworm *(Spodoptera frugiperda)*
[0]	Corn Earworm *(Heliothis zea)*	[0]	Cutworms *(Euxoa spp)*
[1]	Other *(specify)* Sclerotinia trifoliorum	[0]	Other *(specify)*

ROOT KNOT NEMATODES *(Meloidogyne spp)*

[2] M. incognita [1] M. arenaria [2] M. javanica [1] M. hapla [2] M. incognita acrita

10. INDICATE THE VARIETY MOST CLOSELY RESEMBLING THE APPLICATION VARIETY FOR THE FOLLOWING:

CHARACTER	VARIETY	CHARACTER	VARIETY
Cold Hardiness	Warrior	Earliness	None 3/
Percentage Hard Seeds	Cahaba White 1/	Seed Yield	Warrior
Pod Dehiscence	None 2/	Growth Habit	None 4/

REFERENCES:

Hughes, P. 1954, Etudes préliminaries a la creation d'un catalogues des espèces et variétiés de vesces cultivées en France. Ann. de l'Amélioration des Plant., Ser. B, 3: 385-448

Iannelli, P. 1964. Variety testing of vetches. Proc. Int. Seed Test. Ass. 29(4): 887-907

COMMENTS:

1/ Cahaba White, Vantage, and Nova II are the only other V. sativa varieties with similar percentage hard seeds.
2/ No other V. sativa variety approaches Vanguard in nondehiscence of pods.
3/ No other V. sativa variety approaches Vanguard in earliness.
4/ No other V. sativa variety approaches Vanguard in erectness of growth hab
5/ Considering p^o leaves, there are up to 3 additional leaves (4 total) produced that are morphologically identical to the first leaf produced.

Rcb 6/11/81

Exhibit D - Vanguard (Application No. 7900034)

Vanguard produces high yields of herbage and seed. It is not as winter hardy as Cahaba White or Vantage. It produces herbage earlier than hairy vetch (V. villosa); therefore, a given amount of dry matter or nitrogen can be turned at an earlier date than from hairy vetch. This enables a good green manure crop to be turned under sufficiently early for planting corn on time.

Vanguard can be used for green manure, grazing or seed. It has a high percentage of hard seed and is an excellent reseeder when managed properly. Two reseeding stands have been obtained from one good seed crop when mature seed were turned down in preparing land for a cropping sequence with crops such as corn, cotton, grain sorghum, or soybeans. It can be planted annually for temporary grazing or for green manure to be turned ahead of corn. When used for green manure, it can produce available nitrogen equivalent to 90 or 120 pounds of fertilizer nitrogen.

Other advantages of Vanguard follow: it is resistant to the vetch bruchid or weevil (Bruchus brachalis Fahr.) that often destroys 50% of the seed produced by hairy vetch; it matures seed 10 days earlier than hairy vetch; it is resistant to the following root-knot nematodes: Meloidogyne incognita, M. incognita acrita, and M. javanica, while hairy vetch is susceptible to all five species of root-knot nematodes (Vanguard acts as a trap crop for the above three species of root-knot nematodes); Vanguard is resistant to races 3 and 4 of the soybean cyst nematode (Heterodera glycines Ichinohe); Vanguard is the most shatter resistant variety or accession of V. sativa tested.

Written on back " 4-20-81 Plant Breeding Unit, Tallassee, Al.
Individual plants of Vanguard (reconstituted - single line) "

D 6/29/81

Written on back " 4-20-81 Plant Breeding Unit, Tallassee, Al.

Left - Nursery Plants of Vanguard (reconstituted - single line)
Right - Cahaba White "

6/29/81